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ABSTRACT

In order to enable secondary electronics teachers in Tennessee to attend free training and skills updating at the National Program for Electronics Training (NPET), the University of Tennessee at Knoxville developed a program that seeks private sources of support for teacher participation. Teachers and local industries enter a joint venture to improve the quality of electronics-related training. Twenty teachers are currently participating in the program. After participating teachers are identified, project staff work to match teachers and sponsors. Project goals are explained to both parties, after which teachers and sponsors are matched and encouraged to establish an ongoing working relationship. The type and extent of involvement between teacher and sponsor are left to the participants. The only requirement is that the industry sponsor provide funds for the teacher to attend NPET training. Each industry contacted is given the opportunity fully or partially to sponsor a teacher. A second component of the project is the identification of exemplary student award winners. NPET permits space for 15 electronics students to participate in a special training program at Fort Gordon, Tennessee. Preliminary responses to the program during its pilot year indicate a strong interest in the program on the part of teachers and industry alike. (Appended are four "exhibits" consisting of project-related correspondence and including teacher and industry sponsor survey instruments.) (MN)

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INDUSTRY/ ELECTRONICS EDUCATION

JOINT VENTURE

Presented at the
1988 MSERA Annual Meeting
Louisville, Kentucky

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Office of Educational Research and Improvement
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Presenters:

Susie Bookout
and
Ken Cox

The University of Tennessee, Knoxville
Department of Technological and Adult Education

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INDUSTRY/ELECTRONICS EDUCATION JOINT VENTURE

Susie Bookout
and
Ken Cox

In order to enable secondary electronics teachers in Tennessee to attend free training and skills updating at The National Program For Electronics Training (NPET), UTK Curriculum Development Project developed a program which seeks private sources of support for teacher participation. Teachers and local industries enter a joint venture to improve the quality of electronics-related training.

Since this is the pilot year of the project, data has not yet been collected. Preliminary responses indicate a strong interest by both teachers and industries.

Business and education have been involved in working relationships for decades. Many of these business-education hookups have been formed as "partnerships" or "adopt-a-school" programs (Galagan, 1988). In these programs, individual companies link up with specific schools to create a personal relationship based on the school's needs (Naisbitt and Aburdene, 1985). This model has been a successful one. Noteworthy examples of such programs include the SEED Program in Dallas (San Antonio Express News, 1983), High-Tech High School in Fairfax County, Virginia (The Washington Post, 1984); and the Boston Compact (Partnerships with the Boston Public Schools, 1982).

A new concept emerging from business-education involvement is the idea that businesses should invest time and effort in preparing a workforce during public education rather than in remediating it when it reports to work (Galagan, 1988). Public/Private Ventures, a corporation dealing with social policy initiative, reports that collaborative programs between schools and businesses are on the rise (Naisbitt, 1985).

One of the reasons for the success of these programs and the rise in business participation in education is the mutually-beneficial nature of the program. Both schools and businesses benefit from the relationship. Partnerships create linkages among student, school, community, and the world of work.

Potential Benefits to Business

- Produce an employable work force
- Increase job pool in the community
- Chance for input into curriculum
- Enhanced prestige/public relations in the community
- Influence the effective use of tax monies
- Opportunity to perform civic and community service
- Tax writeoff for contributions of money, equipment, and other contributions

Potential Benefits to Students/Schools

- Donation of money, equipment, materials, etc.
- Provide part-time jobs for students
- Provide summer employment for teachers
- Plant/facility tours
- Industry input into curriculum on current technology/trends
- Provide skills upgrading for teachers
- Workshops/conferences/seminars for teachers and students
- Participation by business in career day activities
- Job placement for graduates
- Provide awards/prizes to outstanding teachers and students
- Provide guest speakers
- Sponsor student club programs and activities

CURRENT STATUS

After the publication of the alarming book, A Nation At Risk, many businesses increased their involvement in education in order to produce employable graduates from local schools. Their involvement has taken a hard-line approach. Assuming the role of education activist, American corporations are engaging in unprecedented educational experiments and offering outlandish proposals.

Despite the success of working partnerships and joint ventures documented in literature and evidenced in local school systems, schools have failed to take advantage of many opportunities available to them. An example of such an opportunity for the State of Tennessee is the National Program For Electronics Training (NPET) - A joint venture between the U.S. Army and State Departments of Education.

BACKGROUND

In addition to joint ventures between private sector businesses and schools, the U.S. Army has entered a joint educational venture with 10 southeastern states to improve basic electronics training in the nation's high schools. The National Science Center for Communications and Electronics (NSCCE) was assigned the task of sharing Army educational technology and communications-electronics technology with State Departments of Education, colleges and universities, business and industry, and other federal agencies supporting the advancement of technical education for the youth of America.

A major goal of NSCCE is to improve the quality of education and teacher training in science and mathematics, and the fields of communications and electronics. NSCCE is a joint venture between the U.S. Army and public schools to provide a level of mathematics, science, and technology education that will equal or excel that of other developed nations.

To promote basic electronics training in American high schools and strengthen technical knowledge, the U.S. Army and 10 south-eastern states have established a joint educational venture - NPET. Under the direction of NSCCE, NPET presents programs for professional development for secondary electronics teachers and students. The NPET program is established through a NSCCE-State partnership, a joint action plan, a joint NSCCE-State electronics curriculum, teacher workshops, student symposia, and supporting NSCCE electronics training materials. Components of NPET include updating of vocational teachers at Army installations during the summer and symposia for outstanding students.

Benefits to teachers and students participating in NPET are numerous. Both teachers and students become involved in a wider range of the electronics industries. This wider range of knowledge prepares students for changing demands of technology and increases career opportunities. Teachers are introduced to the most current educational technology in the Army and may adapt equipment, materials, and techniques to their own programs.

PROJECT PURPOSE

The Tennessee Department of Vocational Education was asked to participate actively in NPET training. Due to limited resources, the State Department of Education has not made NPET training available to electronics-related program teachers.

In order to make NPET training available to electronics-related teachers in the State of Tennessee the Industry/Electronics Education Joint Venture was established in the University of Tennessee, Department of Technological and Adult Education. The rationale for the project is to provide funding for teachers and students in the NPET program by offering industries a joint teacher/industry venture in which the industry sponsors an electronics-related teacher or student. The project matches teachers and students with local industries expressing an interest in entering a joint venture to improve the quality of electronics-related training. Industry will benefit from the joint venture by working with sponsored teachers. The venture allows the industry's input into the educational process,

thereby increasing industry's possibility of obtaining highly skilled entry-level workers when students complete the program.

PROCEDURE

The first task of project staff was to make information on NPET training available to potential participants. Letters were sent to each electronics-related program teacher identified by the State Department of Education. The purpose of the letter was to determine the extent of interest in participation. (See exhibit I in Appendix.) Also, a letter was sent to the vocational director of each school system in Tennessee to verify the accuracy of information. (See exhibit 2 in Appendix.) A total of 75 teachers were identified as eligible to participate in the program. Teachers desiring to participate in the program were asked to contact project staff. Additionally, a reminder letter was sent to non-respondents a month later. (See exhibit 3 in Appendix.) Twenty (20) teachers are currently participating in the program.

Once participating teachers were identified, project staff began contacting electronics-related industries in the geographic region being served by the teacher. Project staff is currently in the process of matching teachers and sponsors. Project goals are explained and participation is encouraged. (See exhibit 4 in Appendix.) Teachers and sponsors are matched and encouraged to establish an ongoing working relationship. The type and extent of involvement between teacher and sponsor is left to the participants. The only requirement is that the industry sponsor provides funds for the teacher to attend NPET training. Each industry is given the option of fully or partially sponsoring a teacher.

A second component of the project is the identification of Exemplary Student Award winners. NPET permits space for fifteen electronics students to participate in special training at Ft. Gordon. Electronics students will learn about the Exemplary Student Awards from teachers, local vocational directors, and related student organization officials.

Identification of Exemplary Students will be made in the Spring of 1989 from regional Vocational Industrial Clubs of America (VICA) contest winners. VICA is a student organization for students enrolled in vocational programs. Each year VICA sponsors regional, state, and national competitions in many vocational skill areas. Two electronics-related competitions are conducted in VICA competition. VICA competition is divided into nine regions in Tennessee. Identifying winners from the regional VICA competition provides statewide distribution of awards and eliminates bias in selection.

Industries will be asked to sponsor Exemplary Students by providing funds for them to attend High Technology in Electronics Symposia at Ft. Gordon during the summer of 1989. When possible, representatives of sponsoring industries will make the awards at VICA awards ceremonies. Selected students will be notified of program dates and travel arrangements.

After NPET training, project staff will assess the effectiveness of the joint venture for teachers, students, and industry sponsors. Each group will complete an evaluation form to determine usefulness of program, benefits gained from the program, problems encountered, suggestions for program improvement, and extent of future interest. Evaluation results will be made available when completed.

DISCUSSION

Once set into place, the industry/electronics education joint venture has the potential to continue indefinitely on a self-paying and revenue generating basis. Links established between industries and electronics education programs will reduce the cost of program administration. Anticipated benefits from the joint venture include donations of money, equipment, training, improved curriculum, and many others.

Although the initial response from electronics-related program teachers has been somewhat disappointing (20 of 75 teachers responding), increased communication may help the program in the future. As participating teachers relate their experiences to other teachers, we anticipate increased interest and participation in the program. Initial response from industry has been very

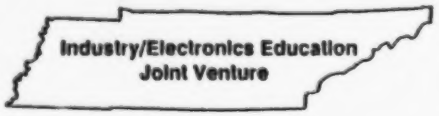
favorable. We anticipate no problems in providing funding from for every teacher in the state. We are eager to see how students, teachers, and industries evaluate the program.

CONCLUSIONS

This project may serve as a model for other areas in vocational education where advanced skills training may be sponsored. Evaluation results at the end of the year may define other strategies and practical activities to improve the education/industry joint venture.

Given the current interest by the business community in educational programs, joint venture projects have the potential to improve communications and actively involve industry in training the future work force.

Exhibit 1 **Initial Letter to Teachers**



The University of Tennessee, Knoxville
Technological & Adult Education
414 Claxton Addition
Knoxville, TN
37996-3400

August 29, 1988

Dear Instructor:

We know the constant challenge you face keeping up-to-date in a field that changes daily. We'd like to offer you our assistance in meeting this challenge.

The Industry/Electronics Education Joint Venture Project has been funded by the State Department of Education. This project will seek private sources of funds to support your participation in the National Program for Electronics Training (NPET).

Under the direction of The National Science Center For Communications and Electronics, NPET presents programs for professional development of vocational education teachers at Ft. Gordon, GA and Redstone Arsenal, AL during the summer. The teacher program consists of a two-week workshop providing up-to-date training and demonstrating the type of training high school graduates face upon entering a military electronics-related program. The training program is free; the only costs are transportation, lodging, and meals.

The purpose of the Industry/Electronics Education Joint Venture is to match teachers desiring to attend NPET training with local industries expressing an interest in entering a joint venture to improve the quality of electronics-related training. Industries will be asked to sponsor teachers by contributing travel, lodging and meal expenses for training during the summer of 1989. Sponsoring industries and teachers are encouraged to establish and maintain a working relationship, giving the industry input into the educational process. First choice of sponsorship will be given to Advisory Council members.

An additional purpose of the project is to provide Exemplary Student Awards for students demonstrating excellence in electronics-related programs. The award will consist of an expense-paid trip to NPET's High Technology in Electronics Symposia for outstanding students. The symposia is a one-week program demonstrating and providing hands-on experiences in electronics technology. Exemplary Students will be identified from regional VICA contest winners. Please explain the Exemplary Student Award to your students and encourage them to participate in regional VICA contests.

If you wish to participate in NPET training, please fill out and return the enclosed form by October 31, 1988. ANY REQUESTS RECEIVED AFTER THIS DATE WILL NOT BE CONSIDERED FOR THE SUMMER, 1989 PROGRAM.

If you have any questions or need additional information, feel free to call Susie Bookout or Ken Cox at (615) 974-4535.

We look forward to hearing from you soon!

Sincerely,

Susie Bookout
Coordinator

Ken Cox, CET
Coordinator

Meeting the Need in Vocational Electronics Education

Exhibit 1

Teacher Survey

Fill in the blanks below (PLEASE PRINT or TYPE). When done, fold as shown on back of page, stamp, and return to us. Thanks!

Name:_____ County:_____

School _____ School System:_____

____ Contact these members of my Advisory Council about the Industry/Electronics Education Joint Venture:

Council Member	Company Name	Street Address	City	Zip	Phone

____ Contact these other Industry Representatives about the Industry/Electronics Education Joint Venture:

Contact Person	Company Name	Street Address	City	Zip	Phone

____ Please match me with any available Industry Sponsor.

Appendix - 2

Exhibit 1

Back for all Surveys

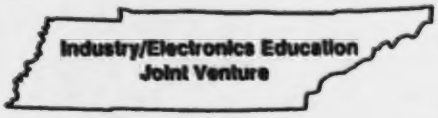
Fold on Lines

Place stamp here. The Post Office will not deliver unstamped mail.

Industry/Electronic Education Joint Venture Project
The University of Tennessee
414 Claxton Addition
Knoxville, TN 37996-3400

Staple Here

Exhibit 2 **Letter to Vocational Directors with Programs**



The University of Tennessee, Knoxville
Technological & Adult Education
414 Claxton Addition
Knoxville, TN
37996-3400

September 1, 1998

Dear Director:

Our records show that your school system has electronics-related programs. We know the challenge you face keeping your electronics instructors up-to-date in a field that changes daily. We'd like to offer you our assistance in meeting this challenge.

The Industry/Electronics Education Joint Venture Project has been funded by the State Department of Education. This project will seek private sources of funds to support your instructors' participation in the National Program for Electronics Training (NPET).

Under the direction of The National Science Center For Communications and Electronics, NPET presents programs for professional development of vocational education teachers at Ft. Gordon, GA and Redstone Arsenal, AL during the summer. The teacher program consists of a two-week workshop providing up-to-date training and demonstrating the type of training high school graduates face upon entering a military electronics-related program. The training program is free; the only costs are transportation, lodging, and meals.

The purpose of the Industry/Electronics Education Joint Venture is to match teachers desiring to attend NPET training with local industries expressing an interest in entering a joint venture to improve the quality of electronics-related training. Industries will be asked to sponsor teachers by contributing travel, lodging and meal expenses for training during the summer of 1999. Sponsoring industries and teachers are encouraged to establish and maintain a working relationship, giving the industry input into the educational process. First choice of sponsorship will be given to Advisory Council members.

An additional purpose of the project is to provide Exemplary Student Awards for students demonstrating excellence in electronics-related programs. The award will consist of an expense-paid trip to NPET's High Technology in Electronics Symposia for outstanding students. The symposia is a one-week program demonstrating and providing hands-on experiences in electronics technology. Exemplary Students will be identified from regional VICA contest winners.

Your electronics instructors have already been notified of this project. Please encourage them to participate. If you could make the time to fill out the enclosed form and return it to us, we sure would appreciate it. Thank you.

If you have any questions or need additional information, feel free to call Susie Bookout or Ken Cox at (615) 974-4535.

We look forward to hearing from you soon!

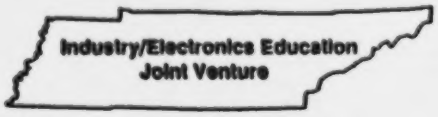
Sincerely,

Susie Bookout
Coordinator

Ken Cox, CET
Coordinator

Meeting the Need in Vocational Electronics Education

Exhibit 2 **Letter to Vocational Directors without Programs**



The University of Tennessee, Knoxville
Technological & Adult Education
414 Claxton Addition
Knoxville, TN
37996-3400

September 1, 1988

Dear Director:

Our records show that your school system has no electronics-related programs. If so, please indicate this on the enclosed form, and return it to us.

If your system does have electronics-related programs, we'd like to offer you our assistance.

The Industry/Electronics Education Joint Venture Project has been funded by the State Department of Education. This project will seek private sources of funds to support your instructors' participation in the National Program for Electronics Training (NPET).

Under the direction of The National Science Center For Communications and Electronics, NPET presents programs for professional development of vocational education teachers at Ft. Gordon, GA and Redstone Arsenal, AL during the summer. The teacher program consists of a two-week workshop providing up-to-date training and demonstrating the type of training high school graduates face upon entering a military electronics-related program. The training program is free; the only costs are transportation, lodging, and meals.

The purpose of the Industry/Electronics Education Joint Venture is to match teachers desiring to attend NPET training with local industries expressing an interest in entering a joint venture to improve the quality of electronics-related training. Industries will be asked to sponsor teachers by contributing travel, lodging and meal expenses for training during the summer of 1989. Sponsoring industries and teachers are encouraged to establish and maintain a working relationship, giving the industry input into the educational process. First choice of sponsorship will be given to Advisory Council members.

An additional purpose of the project is to provide Exemplary Student Awards for students demonstrating excellence in electronics-related programs. The award will consist of an expense-paid trip to NPET's High Technology in Electronics Symposia for outstanding students. The symposia is a one-week program demonstrating and providing hands-on experiences in electronics technology. Exemplary Students will be identified from regional VICA contest winners.

If you have any questions or need additional information, feel free to call Susie Bookout or Ken Cox at (615) 974-4535.

Thank you for your cooperation in this project.

Sincerely,

Susie Bookout
Coordinator

Ken Cox, CET
Coordinator

Meeting the Need in Vocational Electronics Education

Exhibit 2 **Vocational Director Survey**

Fill in the blanks below (PLEASE PRINT or TYPE). When done, fold as shown on back of page, stamp, and return to us. Thanks!

Name:_____ County: _____

School System: _____

____ We have NO electronics related programs in this system.
Thank you for your cooperation. Please return form.

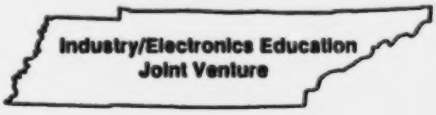
____ We do have electronics related programs in this system.
Please check instructors below for accuracy.

Name	School
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

____ Contact these Industry Representatives about the Industry/Electronic Education Joint Venture:

Contact Person	Company Name	Street Address	City	Zip	Phone
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Exhibit 3 **Reminder Letter to Teachers**



The University of Tennessee, Knoxville
Technological & Adult Education
414 Claxton Addition
Knoxville, TN
37996-3400

October 8, 1988

Dear Instructor:

This is just a reminder for you to send in your Industry/Electronics Education Joint Venture questionnaire. We sent you a letter along with the questionnaire around the first of September. The cut-off date for your response is the end of October. If you're receiving this letter, then we have not yet received your reply to our first mailing.

There's a possibility that your response got crushed in the automatic sorting machines used by the post office. We realized that the stock on which we printed the original questionnaire was too light when we got some mangled questionnaires back in the mail. To remedy this problem, we've reprinted the questionnaire on a heavier stock this time.

We encourage you to fill out the enclosed questionnaire and return it to us promptly. The cut-off date for participation is still the end of October. So take a little time, fill out and return the questionnaire, and help up help you participate in the best training program around: NPET.

If you have any questions, please don't hesitate to call either Susie Bookout or me at 615-974-4535.

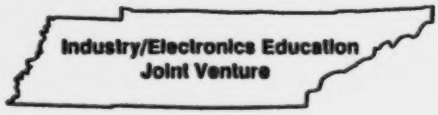
Sincerely,

Ken Cox, CET
Coordinator

enc.

Meeting the Need in Vocational Electronics Education

Exhibit 4 **Initial Letter to Potential Industry Sponsor**



The University of Tennessee, Knoxville
Technological & Adult Education
414 Claxton Addition
Knoxville, TN
37996-3400

November 10, 1988

Contact Name
Industry Name
Street Address
City, TN ZipCode

Dear Contact Name:

After the publication of the alarming book, A Nation At Risk, many businesses healed up their involvement in education in order to produce employable graduates from local schools. A new concept emerging from this involvement is the idea that businesses should invest time and effort in preparing a workforce during public education rather than in remediating it when it reports to work.

We would like to give you the opportunity to make an impact on the quality of secondary electronics-related vocational programs in your area. The University of Tennessee-Knoxville, in conjunction with the State Department of Education, is proposing an "Industry/Electronics Education Joint Venture." The project matches electronics-related programs/teachers with local industries expressing an interest in entering a joint venture to improve the quality of electronics-related training. Sponsoring industries and teachers/programs are encouraged to form a working partnership. The venture allows the industry's input into the educational process, thereby increasing industry's probability of obtaining highly skilled entry-level workers when students complete the program.

The extent and types of involvement between the industry and teacher/program are determined on a one-on-one basis. There is only one requirement of the sponsoring industry. The industry agrees to pay part or all of the cost for the sponsored teacher to attend The National Program For Electronics Training (NPET) at Fort Gordon, GA during the summer of 1989. The program is free; the only costs are transportation, food, and lodging during the training program. NPET presents programs for updating of vocational education teachers. Material describing the NPET Program is enclosed.

A second option available to you is to sponsor an Exemplary Student Award. NPET offers a one-week symposium for outstanding students identified in the state. Identified students will be offered an expense-paid trip to the NPET training program. Once again, the program is free and also the lodging. The expense includes transportation and food for the student during the training program. You may sponsor part or all of the cost.

If you would like a chance to make an impact on the quality of secondary electronics-related programs in your area, to "make a difference," show your interest by participation in the "Industry/Electronics Education Joint Venture." Please complete and return the attached form.

If you need further information or have questions, call project coordinators Susie Bookout or Ken Cox at (615) 974-4535. Or if you prefer, write to us at the letterhead address.

We look forward to hearing from you soon!

Sincerely,

Susie Bookout
Coordinator

Ken Cox, CET
Coordinator

enc.

Meeting the Need in Vocational Electronics Education

Exhibit 4 **Potential Industry Sponsor Survey**

Fill in the blanks below (PLEASE PRINT or TYPE). When done, fold as shown on back of page, stamp, and return to us. Thanks!

Name: _____

Company: _____

Address: _____

City: _____

Zip: _____

Phone: _____

_____ I will sponsor a local teacher/program

_____ I will share sponsorship of a local teacher/program

_____ I will sponsor an Exemplary Student

_____ I will share sponsorship of an Exemplary Student

_____ I am not interested in sponsoring at this time, but would like to be informed of future joint venture opportunities

_____ Contact these other Business and Industry Leaders about the Industry/Electronics Education Joint Venture:

Contact Person	Company Name	Street Address	City	Zip

If you work in math, science or electronics education, and would like more information on the NSCCE, contact them at:

National Science Center for Communications and Electronics
ATTN: ATZH–NSC
Fort Gordon, GA 30905-5689